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Docket No. H07-138280M/MAK

### REMARKS

Claims 1-4, 7-8 and 27 are all of the claims presently pending in the application. Claims 5-6, 9-26 and 28-33 have been canceled. Claims 1-2 have been amended to further define the claimed invention.

It is noted that the claim amendments are made only for more particularly pointing out the invention, and not for distinguishing the invention over the prior art, narrowing the claims or for any statutory requirements of patentability. Further, Applicant specifically states that no amendment to any claim herein should be construed as a disclaimer of any interest in or right to an equivalent of any element or feature of the amended claim.

Claims 21-23 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 28-33 stand rejected under 35 U.S.C. § 112, second paragraph. Claims 1-10 and 21-33 stand rejected under 35 U.S.C. § 112, first paragraph. Claims 28-33 stand rejected under 35 U.S.C. § 112, first paragraph.

Claims 1-10 and 21-32 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Anzai (U.S. Patent No. 5,923,933) combined with Japanese Patent No. 2000-267338.

These rejections are respectfully traversed in view of the following discussion.

#### **I. THE CLAIMED INVENTION**

The claimed invention is directed to an image forming method which includes developing an electrostatic latent image formed on an image carrier with a developing device into a toner image using toners, transferring said toner image onto a recording medium, and fixing said toner image transferred onto said recording medium to thereby form a recorded image on a recording sheet.

In the claimed invention, a peripheral speed ratio ( $S1 = Vm1 / Vp$ ) between the peripheral speed ( $Vm1$ ) of said first developing roller and the peripheral speed ( $Vp$ ) of said image carrier is set in the range of 0.8 - 2.0, and a peripheral speed ratio ( $S2 = Vm2 / Vp$ ) between the peripheral

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speed ( $V_{m2}$ ) of said second developing roller and the peripheral speed ( $V_p$ ) of said image carrier is set in the range of 1.05 - 2.0. In addition, the shape coefficients SF1, SF2 of said toners of the developing agent respectively satisfying the following conditions:  $120 \leq SF1 \leq 170$  and  $110 \leq SF2 \leq 130$ .

Importantly, in the present invention, developing the electrostatic latent image includes selecting the shape coefficients SF1 and SF2 such that an excessive stress is prevented from being applied to the developing agent between the first and second developing rollers and a developing agent distributing member formed between said first and second developing rollers, to restrict an occurrence of photographic fog, which may result in an improved image.

## II. THE 35 USC §112, FIRST PARAGRAPH REJECTION

The Examiner alleges that claims 1-10 and 21-33 are not enabled under 35 U.S.C. § 112, first paragraph. Applicant would note, however, that these claims have been amended to address the Examiner's concerns.

Specifically, Applicant would point out that claims 1 and 2 (and similarly in claim 28) have been amended to recite "*wherein said developing said electrostatic latent image comprises selecting said shape coefficients SF1 and SF2 such that an excessive stress is prevented from being applied to said developing agent between said first and second developing rollers and a developing agent distributing member formed between said first and second developing rollers, to restrict an occurrence of photographic fog*". This is clearly enabled by the present Application.

Therefore, Applicant would respectfully argue that these claims are adequately enabled by the specification.

## III. THE ANZAI AND JP '338 REFERENCES

The Examiner alleges that Anzai would have been combined with JP '338 to form the claimed invention. Applicant would argue, however, that these references would not have been combined and even if combined, the combination would not teach or suggest each and every

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element of the claimed invention.

Specifically, these references are directed to different problems and solutions. Indeed, Anzai is directed to a method in which the ratio of sliding friction force is matched with other features to allegedly provide a uniform image, whereas, JP '338 is not directed to a method including two developing rollers (e.g., a center feed developing system). Therefore, these references are completely unrelated, and no person of ordinary skill in the art would have considered combining these disparate references, absent impermissible hindsight. Further, Applicant would argue that the Examiner can point to no motivation or suggestion in the references to urge the combination as alleged by the Examiner.

Moreover, neither Anzai, nor JP '338, nor any combination thereof teaches or suggests *"wherein said developing said electrostatic latent image comprises selecting said shape coefficients SF1 and SF2 such that an excessive stress is prevented from being applied to said developing agent between said first and second developing rollers and a developing agent distributing member formed between said first and second developing rollers, to restrict an occurrence of photographic fog"*, as recited, for example, in claims 1 and 2, and similarly recited in claim 28.

Specifically, the claimed invention selects the shape coefficients SF1 and SF2, such that an excessive stress is prevented from being applied to the developing agent between the first and second developing rollers and a developing agent distributing member formed between the first and second developing rollers (Application at page 19, line 21-page 21, line 25; Figure 7). This allows the claimed invention to stabilize an image quality (e.g., restrict a photographic fog) even at high speeds (e.g.,  $V_p=1800$  mm/s) (Application at page 22, lines 18-21).

Clearly, these novel features are not taught or suggested by the cited references. Indeed, the Examiner basically concedes that Anzai does not teach or suggest selecting the shape coefficients of the toner (e.g., see Office Action at page 17), but alleges that JP '338 teaches the features of the invention and that Anzai would have been combined with JP '338 to form the claimed invention. Applicant would argue, however, that the Examiner is incorrect.

Specifically, the Examiner alleges that there is no relationship between toner shape and

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toner fluidity based on the disclosure of JP '338. **However, it is important for the Examiner to understand that the relationship between toner shape and toner fluidity may vary in accordance with printing speed.**

JP '338 is based on an evaluation result with A-color 630 made by Fuji-Xerox, as described in paragraph [0061]. However, an A-color 630 printer is a low speed printer whose printing speed is only dozens of pages per minute.

On the other hand, an image forming apparatus which is an exemplary aspect of the claimed invention, includes an ultra-high speed class printer having a printing speed of 300 pages or more per minute.

Accordingly, an image forming apparatus having a low printing speed may neglect the relationship between toner shape and toner fluidity, because a developer in the developing device is conveyed at low speed. However, in an image forming apparatus having an ultra-high speed, since a developer in a developing apparatus is conveyed in high speed, the stress applied to the developer cannot be neglected, thereby toner fluidity is an extremely important factor.

Thus, the claimed invention is a novel invention that realizes, among other things, the relationship between toner shape and toner fluidity, and maintains a life of the developer, especially in the case where an ultra-high speed image forming apparatus is used. Thus, the Examiner's position is totally indefensible.

Further, the Application states that, in a center feed developing system, a developing agent may be restrictively distributed to the developing rollers by a developing agent distributing member. However, in this case, large stresses are applied to the toners (e.g., between the first and second developing rollers and a developing agent distributing member formed between the first and second developing rollers) and, as a result, external additives can be embedded in the toner surface, and toner components can be fused to the carrier surface, causing the frictional electric charging between the toners and carriers to be insufficient, and an increase in photographic fog (Application at page 7, lines 4-20).

The claimed invention, however, selects the shape coefficients SF1 and SF2 (e.g., to be within optimum ranges), such that an excessive stress is prevented from being applied to the

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developing agent between the first and second developing rollers and a developing agent distributing member formed between the first and second developing rollers (Application at page 19, line 21-page 21, line 25; Figure 7). Nowhere is this taught or suggested by JP '338.

In fact, nowhere does JP '338 even teach or suggest a center feed developing system. Certainly, JP '338 does not recognize the problem of an excessive stress being applied to the developing agent between the first and second developing rollers and a developing agent distributing member formed between the first and second developing rollers.

Moreover, the Examiner attempts to rely on paragraph [0012] of JP '338 to support her position. However, this passage merely states that with the JP '338 toner, "there is no problem in the fluidity". Nowhere in the passage or anywhere else for that matter, does JP '338 relate this to the shape coefficients SF1 and SF2.

In fact, JP '338 at paragraph [0014] states since "a toner shape is comparatively made into an indeterminable form ... even if it does not raise the exposed-surface product ratio of the wax occupied on a toner surface, the large exposed-surface product of a wax can be taken as a whole. Therefore it fully elutes a wax out of a toner". That is, **JP '338 merely teaches that the shape coefficients are important for providing a good "exposed-surface of a wax" in order to achieve a good fixing property and does not teach or suggest that toner shape has anything at all to do with a good toner fluidity as alleged by the Examiner (JP '338 at paragraph [0020]).** Thus, JP '338 clearly fails to make up for the deficiencies of Anzai.

Therefore, Applicant respectfully submits that these references would not have been combined and even if combined, the combination would not teach or suggest each and every element of the claimed invention. Therefore, the Examiner is respectfully requested to withdraw this rejection.

#### IV. FORMAL MATTERS AND CONCLUSION

In view of the foregoing, Applicant submits that claims 1-4, 7-8 and 27, all the claims presently pending in the application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to

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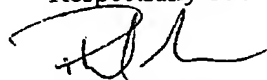
issue at the earliest possible time.

Should the Examiner find the application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a telephonic or personal interview.

The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: 3/14/05



Phillip E. Miller, Esq.  
Registration No. 46,060

**McGinn & Gibb, PLLC**  
8321 Old Courthouse Road, Suite 200  
Vienna, VA 22182-3817  
(703) 761-4100  
Customer No. 21254

**CERTIFICATE OF FACSIMILE TRANSMISSION**

I hereby certify that the foregoing Amendment was filed by facsimile with the United States Patent and Trademark Office, Examiner Janis Dote, Group Art Unit # 1756 at fax number (703) 872-9306 this 14<sup>th</sup> day of March, 2005.



Phillip E. Miller  
Reg. No. 46,060